



Working Draft

Wildfire Smoke Response Coordination –
Best Practices Being Implemented by Agencies in California



August 2014

Preface

This document outlines the collaboration tools developed over the past several years by federal, state, local, and tribal agencies who have been involved in wildland fire smoke air monitoring and response in California. Its purpose is to provide useful information and resources to agencies seeking assistance in protecting the public's health from the impacts of smoke during catastrophic fire. Many of the process/procedures in this document are also applicable for other air release emergency situations. The practices, agency contacts, and other information contained in this document should be reviewed and updated on an annual basis in order to remain current. This document is not official guidance, nor does it replace, interfere with, or limit any action taken by a public agency in the course of performing its official duties. This document is prepared under the auspices of the California Air Response Planning Alliance (CARPA) and the California Interagency Air and Smoke Council (IASC) and reflects the proceedings from the inaugural joint workshop held by these two organizations on April 30 - May 1, 2014 at the Wildland Fire Training and Conference Center at McClellan Business Park in Sacramento, CA. Future updates or revisions shall be made in collaboration with all participating parties.

The members of the Wildfire Smoke Response Coordination Group (mentioned in the document) agree this document should remain as a working draft for this wildfire season in order to continue receiving comments from the users to further refine it.

Please direct any questions concerning this document to the CARPA Co-Chairs John Kennedy, USEPA Region IX at (415) 947-4129, kennedy.john@epa.gov, or Mike Miguel, CARB/MLD, at (916) 322-0960, mmiguel@arb.ca.gov.

Acknowledgements

The following agencies collaborated in the development of the wildfire smoke response coordination system outlined in this document:

California Air Resources Board

US Environmental Protection Agency

Placer County Air Pollution Control District

US Department of Agriculture -- Forest Service

US Department of Interior -- National Park Service

California Air Pollution Control Officers Association

California Conference of Local Health Officers

California Department of Public Health

California Office of Environmental Health Hazard Assessment

California Office of Emergency Services

Agency for Toxic Substances and Disease Registry

Hoopa Valley Tribe

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1. Purpose and Scope

Wildfires emit tons of particulates and other pollutants that can cause serious health effects in people exposed to the smoke. Federal, tribal, state, and local government agencies and other entities respond to wildfire incidents by directing their efforts through daily coordination calls. In recent years, during severe smoke episodes caused by large or long duration wildfires in California, agencies have demonstrated teamwork in planning out the air quality support system needed during these incidents.

Note:

This document specifically addresses air quality impacts, as compared to the safety risk posed by the fire itself. It is intended to be a companion document to “**Wildfire Smoke: A Guide for Public Health Officials**”, available at:

<http://www.arb.ca.gov/carpa/toolkit/da-ta-to-mes/wildfire-smoke-guide.pdf>.

This document captures the best practices and planning efforts of these agencies, to ensure continued coordination of resources and response efforts in order to best mitigate public health impacts. It describes general duties and responsibilities of the agencies during wildfire incidents, provides examples of agency actions and resources, including the deployment of portable particulate matter (PM) monitoring and meteorological instruments, and recommends outcomes and public health actions based on the particulate concentrations and the duration of smoke exposure. It also describes the preparatory activities agencies can conduct in the off-season to help ensure smooth coordination during the fire season, and provides references and example documents for further information.

Table 1 describes the expertise of each entity participating in smoke response, indicating the level of involvement and assistance they can provide. Generally, involvement varies with the severity of the wildfire smoke and its resultant effect on air quality, with some agencies providing more frequent daily communication and coordination while others engaging as needed.

Table 1. Participating Entities and Roles

Contact Agency/Organization	Activities/Expertise/Assistance	Anticipated Level of Involvement
Federal		
Incident Command (IC) /Unified Command (UC)	The IC/UC manages wildfire suppression and containment activities under the Incident Command System. May be comprised of single- or multi-agency staff. Other fed/state/local-/tribal agencies with jurisdiction must coordinate actions with the IC.	Complete, although size and complexity of the IC/UC depends on wildfire size and severity.
Federal Land Managers (US Forest Service, NPS, BLM, FWS)	Wildfire suppression and containment, smoke management and air quality expertise, requests and staffs incident management teams, provides wildfire status updates, deploys air monitoring personnel and	Extensive, depends on the wildfire severity. Typically the lead agency on federal lands.

Contact Agency/Organization	Activities/Expertise/Assistance	Anticipated Level of Involvement
	equipment, and supports public outreach and communication.	
EPA Region 9	Coordination with federal, state, air districts, tribes, and other CARPA member agencies. May respond to inquiries from the public. Conducts Clean Air Act regulatory processes after the fact.	Low to moderate.
FEMA	Federal response agency for natural disasters.	Low unless a state or national disaster is declared.
National		
Air Resource Advisor (ARA) – reports to the Incident Command and/or Agency Administrator	Technical specialist with expertise in air quality monitoring and modeling for public health, transportation safety, and firefighter safety. Provides detailed fire- specific smoke forecasts. Works within the IC and advises the IC and external parties during major wildfires. Currently deployed primarily to fires under USFS jurisdiction.	Extensive – new position assists IC teams to facilitate federal/tribal/state/local response to air quality impacts from wildfire smoke.
Red Cross	Aid and assist in natural disaster response. Mass Care support for sheltering, feeding, and distributing relief supplies.	Occasional, when fire damage and smoke impact risk to public health is severe.
State		
California Air Resources Board (CARB) Office of Emergency Response	Deploy air monitoring personnel to set up and operate portable particulate monitoring and meteorological instruments that can provide data for forecasting, identify areas at risk, support public/media outreach, and coordinate with FLMs, air districts, county health departments, and others.	Extensive during periods of elevated smoke levels.
California Dept. of Public Health (CDPH)	Actively monitor the situation on the public health front, and work with health officers to warn and track any respiratory illness/asthma due to the high particle count as well as chemicals emitted. Distribute relevant information through media, public health network and CAHAN. Work closely with healthcare facilities in the impact/evacuation zone.	Medical Health Coordination Center (MHCC) in operation in large incidents.

Contact Agency/Organization	Activities/Expertise/Assistance	Anticipated Level of Involvement
California Office of Health Hazard Assessment (OEHHA)	Assist responders in assessing health effects and characterizing risk to public health and the environment. Authority to declare a public health emergency. Assessment of burn debris. Guidance for handling ash during cleanup. Provide health information to incident command and Public Information Officers (PIOs).	Depends on the severity of the smoke impact and risk to public health.
California Occupational Safety and Health Administration (Cal-OSHA)	Address worker health and safety in the workplace, and state/private firefighters in the field, through enforcement and/or consultation. Can assist in the evaluation of air quality concerns.	Depends on the severity of the smoke impacts and specific requests for worker protection.
California Governor's Office of Emergency Services (Cal OES)	Coordinates with Regional Emergency Operations Centers (REOCs) and multiple agencies, especially if the Governor declares a state of emergency. Assigns mission tasks to California agencies.	Low to extensive, depending on the severity of incident.
California Governor's Office	Declares a state of emergency when necessary. Coordinates with multiple agencies, especially if the Governor declares a state of emergency.	Low except in most severe incidents.
Local		
Air Quality Management District / Air Pollution Control District– Air Pollution Control Officer (APCO)	Coordinates with CARB OER, EPA, ARA, FLM agency AQ staff and others. Tracks local air quality monitoring data for health implications. May need to respond to inquiries from the public and elected officials. APCO issues air quality advisories to the public.	High, as needed, during periods of unhealthy to hazardous smoke levels.
County Health Department – Public Health Officer (PHO)	Coordinates with their air district, CARB, FLMs and Cal OSHA. Issues advisories notifying the public and media of health risks from smoke. Authority to issue health action-based decisions (shelter in place, evacuations, etc.).	High, as needed, during periods of unhealthy to hazardous smoke levels.
School Districts	With assistance, determines student health risk and makes decisions on event cancellations and school closures.	High, as needed, during periods of unhealthy to hazardous smoke levels.
City and Local Government	Coordinates with air districts, CARB, FLMs and Cal OSHA. Evaluates the risk to the public's health and safety; decides on canceling outdoor events, notifies local businesses, alerts fire and police depts.	High, as needed, during periods of unhealthy to hazardous smoke levels.

Contact Agency/Organization	Activities/Expertise/Assistance	Anticipated Level of Involvement
Tribal		
Tribal Governments	Coordinates with the above agencies. Requests assistance from air districts, CARB, EPA as needed.	High, as needed, during periods of unhealthy to hazardous smoke levels.

2. Response Coordination Activities for Wildfire Smoke Incidents

Table 2 describes actions needed, the expected lead agency, and desired outcomes for wildfire smoke response coordination. The sections below describe specific steps in more detail.

Table 2: Smoke Response Coordination Activities

ACTION NEEDED	Lead Agency and Action Taken	Desired Outcome
1. Air Quality Monitoring (Data)		
Request air monitor deployment.	ARA (if assigned), air district, or tribe makes the request to CARB OER.	To assess and predict community exposure to smoke, adequate AQ monitoring and good data are needed.
Coordinate deployment of air monitoring equipment.	CARB OER along with the ARA, USFS, NPS, air districts, and tribes coordinate the deployment of portable air monitors.	CARB OER or USFS organizes and facilitates, with other agencies, the “1400” call. This call at 2:00 PM daily during major wildfire incidents is used to prioritize monitoring needs along with coordinating equipment and personnel.
Deploy air monitoring equipment to measure ambient air quality and local meteorology.	Primarily CARB OER as the lead agency, along with USFS and NPS on federal lands, and air districts monitor air quality in their jurisdictions. ARAs may be able to provide additional monitoring equipment from the national cache resources and be able to assist in the deployment and setting up of monitors. CARB and USFS have monitoring teams and equipment available for deployment upon request.	Equipment is deployed and data is collected. The data is then transmitted near real time and available for use, to provide decision-support information for both smoke impacted communities and for those relatively smoke-free areas.
Check raw data to assure quality and converting raw data to useful formats.	ARA or other assigned air quality lead.	Charts and other information formats are useful for fire management and public

ACTION NEEDED	Lead Agency and Action Taken	Desired Outcome
		health decision-making and public information.
Track air monitoring equipment locations.	CARB Office of Emergency Response (OER) maintains an equipment tracking spreadsheet.	Maintain current information base of available equipment, location of monitors currently deployed, and movement of deployed equipment for maintenance, relocation, and retrieval.
Develop and maintain data management scripts.	ARA or other assigned air quality lead.	Efficient conversion of the raw monitoring data to accessible information formats.
Monitor indoor air quality for exposure.	Cal OSHA is the lead agency to evaluate air quality concerns for workers. Cal OSHA and CARB OER can provide information on indoor air quality monitoring. CARB OER can conduct indoor monitoring on a limited basis. CDPH and OEHHHA can provide advice to schools upon request.	Air Quality data on indoor smoke at both work and/or in school environments is collected and available for public health support decision-making.
2. Smoke Modeling and Forecasting (<i>Data to Message</i>)		
Smoke weather forecast	CARB meteorological staff and the Geographic Area Coordination Centers provide smoke weather forecasts. The CA and NV Smoke and Air Committee (CANSAC), a consortium of CA and NV agencies working with the Desert Research Institute, provides high resolution weather modeling outputs used by these agencies. The National Weather Service can also provide “spot weather forecasts” for wildfires if needed.	Provide advance notice of the possible smoke movement and impacts; improve public notification, which may lower the risk of public exposure to high smoke levels.
Smoke concentration modeling	An ARA or agency air quality staff can provide modeled smoke concentration forecasts if requested. An ARA accesses the USFS Air Fire Research Team BlueSky smoke modeling forecasts. CARB OER and meteorology and modeling staff can assist with coordination and technical support.	Predictive model forecasts can give an indication of future fire behavior and growth which is useful for monitoring placement and preparing community protective measures.
Base recommended health-based actions on good data and information.	An ARA works in collaboration with his/her interagency support team to ensure that adequate air monitoring is conducted, accurate and reliable information sources are	Air monitoring equipment is maintained and calibrated for deployment, proper

ACTION NEEDED	Lead Agency and Action Taken	Desired Outcome
	utilize, including meteorological and smoke modeling information, and that the correct numeric AQ action levels are used for appropriate and consistent messaging to the public.	QC/QA procedures are followed, and monitor locations are representative of public exposure to smoke. The Wildfire Smoke Guide is used as a guide for AQ action levels and protective measures.
3. Information Dissemination (<i>Message to Audience</i>)		
Issue advisories, announcements, and updates via the web and media on the potential health risks of smoke and recommended actions to protect public health.	County health department/Public Health Officer with coordination between ARA, CARB, CDPH, OEHHA, APCO, local government, and tribes Updated info from the IC on the fire status and the predicted behavior and from CARB/ARA on smoke forecasting.	Frequent coordinated updates provided to the public via the California Smoke Blog, the ARA's information, local government websites, and outreach to print, broadcast, and internet media.
Maintain California Smoke Blog website (see description under #6).	Blog website initiated by Placer County APCD and updated by a website management team of representatives from participating agencies. The "1400" coordination call is the venue for vetting blog information inputs.	Provide agencies and the public with "one-stop" website on air quality impacts from major wildfires.
Maintain CARPA website.	Managed by CARB OER. This site provides wildfire information through web links along with a link to the California Smoke Blog website. Comprehensive wildfire resources and related links.	Complements the above website.
4. Public Actions (<i>Audience Response</i>)		
Cancel or modify public events, outdoor and business activities. Consult with schools on limited hours or closure.	These decisions are made at the local level by Public Health Officer, tribal, or school authorities, in consultation with CARB OER, CDPH or OEHHA, ARA, air district, FLM, and possibly OSHA.	Prompt action is taken via notifications to affected parties and the media, along with posting info on CA Smoke blog and other relevant websites.
Set up public shelters, assist schools or other public occupied buildings to protect from smoke impacts.	The Red Cross can provide support in sheltering operations, based upon decisions by local health officials. Decisions to protect schools and public buildings made at the local level, in consultation with CARB, CDPH or OEHHA, ARA, air district, and possibly Cal OSHA.	Prompt action can be taken to set up clean air shelters, or identify measures for protecting schools and public buildings from smoke when necessary.

ACTION NEEDED	Lead Agency and Action Taken	Desired Outcome
Recommend evacuation and relocation of sensitive populations.	These decisions are made by the Public Health Officer and tribal/local government, in consultation with CARB, CDPH or OEHHA, ARA, air district, FLM, Red Cross, and possibly Cal OSHA.	Prompt action can be taken if dangerous smoke levels are expected to persist for a prolonged period.

2.1. As-Needed Response Coordination Conference Calls and Briefings

During major wildfire events, the CARB Office of Emergency Response or US Forest Service Region 5 Air Quality Program staff will activate and conduct the daily (or as needed) “1400” calls for multiagency monitoring coordination and deployments. Conference call briefings may include an update on the status of major on-going wildfires, possibly from an assigned Air Resource Advisor to that fire, and provide participants an opportunity to discuss current conditions related to air quality, resource or equipment needs, local health impacts, smoke forecasts, recommended public actions, communications, emergency actions such as evacuation, and other issues important to the group.

For major wildfires in neighboring states (Nevada or Oregon, or Mexico) that are affecting California, the daily briefing will include the appropriate contacts in those states who have essential information on the wildfire(s). Likewise, neighboring states being impacted by wildfires in California will be invited to participate on the 1400 calls to receive updates on situational awareness information.

2.2. Planning Air Monitoring Data Collection

As an incident develops and the risk of smoke exposure becomes imminent, the lead response agency should plan for air monitoring deployment and data collection and analysis. The first consideration is where to locate monitors. Site selection is based on a number of factors (geography, population, power, security, access, etc.) and will be done in consultation with the agencies involved with the incident. CARPA provides a template for planning single or multiagency monitoring deployments at: <http://www.arb.ca.gov/carpa/toolkit/data/sampling-plan.pdf>. It provides a Monitoring Plan Form to record monitoring objectives, incident summary, pollutants to be monitored, agency personnel and resources deployed, monitoring locations, and other relevant info. This plan is especially useful for multiagency deployments to ensure a coordinated and effective response.

2.3. Requesting Ambient Air Monitoring Assistance

California air quality management agencies, public or environmental health departments, and county or city fire departments can request air monitoring assistance (personnel and equipment) either by sending their request thru their County OES (Operations Area or County Emergency Operations Center) to Cal OES or by contacting the CARB OER directly. In a state and/or federal declared disaster, Cal OES needs to be contacted as soon as possible. Tribes can request assistance from USEPA, CARB OER, or neighboring air district. The procedure for requesting support from CARB OER and contact information are included in Appendix B. Local agencies requiring assistance

should check with their local air quality management district to see if local equipment is available before making a request to state and federal agencies.

2.4. Monitoring Indoor Air Quality

Wildfire smoke can also affect indoor air quality in private businesses and public buildings such as schools and offices. Research has shown that when there are heavy outdoor smoke levels, a significant amount of smoke can still infiltrate indoors, even with all of the windows and doors closed. Many commercial buildings and schools mechanically draw in the outdoor air through air filtration systems. However, standard HVAC air filters will not remove most of the ultra-fine smoke particles. The “Wildfire Smoke Guide” (Section 4.1.) provides information about the use of air filters and cleaners and other ways to reduce indoor smoke levels.

Different types of indoor air monitors can indicate the potential health risk indoors. This monitoring equipment is generally focused on PM_{2.5}, but may also detect carbon monoxide and other toxic gases. Other features include measuring temperature and relative humidity. Indoor hand-held or portable monitoring equipment can be deployed more rapidly, provides data in real-time, is typically less expensive than outdoor equipment, requires little maintenance, and provides the same measurements in micrograms per cubic meter (µg/m³). These monitors can be purchased, or in some cases rented, during wildfire smoke events. Contact CARB OER or Cal OSHA for more information on the different types, availability, and cost of this equipment. CARB OER is responsible for monitoring air quality outdoors but does have the capability to conduct limited indoor monitoring in schools, evacuations centers, incident command posts, or other public facilities..

2.5. Managing Air Monitoring Data

Portable particulate monitors equipped with satellite modems transmit hourly air quality data and information to U.S. EPA’s “AirNow-Tech” (<http://www.airnowtech.org/>), a restricted-access web site for data management purposes operated by Sonoma Technology, Inc. AirNow-Tech access is available to air quality professionals and data managers by requesting an AirNow-Tech account via the login page. The AirNow-Tech website provides tools which allow data managers to view, analyze and control aspects of their deployed monitors and collected data. AirNow-Tech also allows the data managers to restrict the smoke monitor location and data from being displayed on the complimentary AirNow web site (<http://www.airnow.gov/>), where the data appears to the general public for viewing. On the AirNow website, smoke monitor location will be displayed on a dynamic map with associated data and air quality parameters (efforts are currently underway to have AirNow host portable PM monitor locations and data collected during wildfires). The data generated by the portable monitors is not as precise as traditional federal reference monitors, and therefore can only be used for decisions affiliated with emergency air quality health assessments, protective actions or other incident response related activities.

2.6. Public Health Outreach

Local agencies can use the air quality information provided by the ARA, or other agencies collecting air monitoring data during a wildfire incident, to develop and release public health advisories along with other outreach efforts. The informative Wildfire Smoke Guide (section 4.1.) provides

recommendations on health-protective actions the public can take depending on one's sensitivity to smoke and the concentration in the air, and on the content of health advisories. The Guide is available at <http://www.arb.ca.gov/carpa/toolkit/data-to-mes/wildfire-smoke-guide.pdf>.

2.7. Information Dissemination

The California Smoke Blog (www.californiasmokeinfo.blogspot.com) can provide the public with current air quality and health information on smoke impacts from wildfires. This blog site provides information on wildfire status through web links, air quality conditions and forecasts either through web links or by direct posting of information. It also provides links to other wildfire smoke related web sites. The current administrators of the blog are CARB Staff Charles Pearson, Dar Mims, and Jason Branz; NPS Lee Tarnay; and Placer County APCD Ann Hobbs (see contact information in Appendix D). Those wanting to post information should contact an administrator.

3. Off-Season Preparation Activities

3.1. Incident Command System (ICS) Training

The Incident Command System, part of the National Incident Management System (or NIMS), is the standardized system used by national, state, and local wildfire and other disaster emergency responders. ICS is scalable and flexible, and provides a framework of standardized organization, positions, terminology, and incident management that allows agencies from across a variety of governmental levels and disciplines to operate effectively as an incident management team. Agencies with appropriate jurisdiction, authority, and resources have the right to join or coordinate with incident command. This includes state and local public health departments and air quality management agencies who engage in wildfire smoke response to protect the public's health. For information on on-line ICS training resources, please consult the FEMA and CA OES online training course resources:

<http://training.fema.gov/IS/NIMS.aspx>

<http://www.calema.ca.gov/trainingandexercises/pages/sems-nims-ics-combined-course-training-curriculum.aspx>

At a minimum, any agency personnel participating in incident response, including wildfire, should have the basic ICS orientation 100 and 200 courses. The more advanced ICS 300-400 courses may be taken (when offered) to achieve a deeper understanding of ICS principles and operations.

3.2. California Wildfire Smoke Response Coordination Group

Specific member agency representatives to the California Air Response Planning Alliance (CARPA) and Interagency Air and Smoke Council (IASC) have come together to form an ad hoc coordination group for wildfire response coordination in CA. The steering committees of these two organizations, under the leadership of the coordination group, plan, organize, conduct, and publicize events related to wildland fire smoke management and public messaging, notably the annual pre-season smoke monitoring coordination workshop or conference call. The steering committees often meet by conference call and occasionally in person to conduct the groups'

activities. The off-season is a good time to confirm and update membership. More information about these organizations can be found at:

<http://www.arb.ca.gov/carpa/carpa.htm>

<http://www.arb.ca.gov/smp/progdev/iasc/iasc.htm>

3.3. Annual Pre-Wildfire Season Workshop/Conference Call

Each year prior to the wildfire season, in January-March, representatives from the agencies, organizations, or offices listed in this document will hold a workshop or conference call in preparation for the upcoming season. The purpose of this workshop/call is to review lessons learned from the previous season, assess the upcoming fire conditions forecast, review information provided in this document, discuss any changes or specific preparation needs for the fire season, including equipment caches and training, and to update the contact list of staff expected to be using this document if major wildfires occur. This contact list is provided in Appendix A.

3.4. Smoke Response Coordination Protocol Update and Dissemination

The smoke response coordination group should update this document based on experience from the preceding season and addressing comments and input from the annual pre-season workshop, link it on the CARPA web page, and announce its availability through e-mail to the CARPA and IASC mailing lists.

3.5. Monitor Maintenance, Calibration, and Certification

Between fire seasons, participating agencies' monitoring technicians should set up, test, maintain, calibrate, and certify their agency's portable air monitors and equipment are ready for deployment. CARPA provides a calibration guide for the EBAM particulate monitor with links to additional information at <http://www.arb.ca.gov/carpa/toolkit/data/ebam-guidance-2010.pdf>. CARB's on-line Air Web Manual provides links to operating, maintenance, calibration, and acceptance test procedures for particulate matter, meteorological, and data management equipment, among other types, at <http://www.arb.ca.gov/airwebmanual/>.

3.6. Pre-season Outreach

In areas where wildfire incidents are likely, local and state agencies can consider issuing pre-season public service announcements and media advisories on how to prepare for and protect against wildfire smoke exposure, as recommended in the Wildfire Smoke Guide (section 4.1).

4. Resources

4.1. Wildfire Smoke: A Guide for Public Officials (2008)

Agencies in many states currently use the 2008 Wildfire Smoke: A Guide for Public Officials (or "Wildfire Smoke Guide"), available at <http://www.arb.ca.gov/carpa/toolkit/data-to-mes/wildfire-smoke-guide.pdf>, as a guide to protecting public health during wildfire events. In addition to providing background information on the composition of smoke, potential health effects, and recommended actions, it contains specific strategies on how to reduce smoke exposure, such as

indoor air filters and cleaners, use of masks and respirators, setting up clean air shelters, and examples of public service announcements for wildfire. This document also contains recommended air monitoring intervals (3, 12, 24 hour) with associated health risks and health actions. These intervals are extrapolated from and based on, the national Air Quality Index (AQI). This document is referenced here as general guidance to provide additional information, and like this document, is not intended to replace, interfere with, or limit any action taken by a public agency in the course of performing its official duties, nor does it represent a legally binding document.

4.2. Wildfire/Smoke Related Websites

In addition to the California Smoke Blog described above, these web links can provide current information on wildfire and smoke impact-related activity and other useful information:

1. InciWeb (status of current wildfire incidents): <http://inciweb.nwcg.gov/>
2. Calfire Incidents: http://cdfdata.fire.ca.gov/incidents/incidents_current
3. Prescribed Fire Information Reporting System (online interagency tool for tracking *prescribed* burning in CA): <https://ssl.arb.ca.gov/pfirs/>
4. California Air Response Planning Alliance website (air emergency response information and resources including fire/air quality information): www.arb.ca.gov/carpa
5. US Forest Service fire map: <http://activefiremaps.fs.fed.us/>
6. U.S. EPA's AirNow website (national online resource for air quality information and data): www.airnow.gov/
7. U.S. EPA's "AirNow-Tech" password-protected website <http://www.airnowtech.org/>
8. CA and NV Smoke and Air Committee (meteorological modeling products for smoke): <http://www.cefa.dri.edu/COFF/coffframe.php>
9. USFS Air Fire Research Team (Bluesky smoke modeling) : <http://www.airfire.org/>
10. List of CA Air Districts: www.capcoa.org

4.3. California Webcams

The California Smoke Blog and the [Prescribed Fire Information Reporting System](#) provides links to live webcams which can be used to view wildfire smoke conditions around the state. However, a number of these are designed to show only traffic and road conditions, and do not provide very good image resolution for viewing smoke. Some are much better than others.

Appendix A

Current Participating Agency Contact Information

CONTACT AGENCY OR ORGANIZATION	STAFF NAME and POSITION	CONTACT PHONE/EMAIL
US Forest Service	Trent Proctor, Regional Air Program Manager, Southwest Region, Porterville CA	(559) 783-3308 tprocter@fs.fed.us
CARB Office of Emergency Response (OER)	Greg Vlasek, Chief of the Office of Emergency Response/Air Resources Board	(916) 323-4294 Cell: (916) 838-0872 gvlasek@arb.ca.gov
CA Office of Emergency Services (Cal OES)	State level 24/7 emergency reporting hotline	24 Hr. phone: (916) 874-1100 or (800) 852-7550 stac@calema.gov
California Air Districts	CA Air Pollution Control Officers Association (CAPCOA) website	www.capcoa.org
EPA Region 9	John Kennedy (current CARPA Co-Chair)	(415) 947-4129 kennedy.john@epa.gov
National Park Service	Lee Tarnay, Air Quality	(209) 742-8899 leland_tarnay@nps.gov
Air Resource Advisor - National Coordinator	n/a (assigned when a major WF event occurs). Contact Pete Lahm, USFS	(202) 205-1084 pete.lahm@gmail.com
County Health Departments	CA Conference of Local Health Officers	www.cclho.org
County Environmental Health Departments	CA Conference of Directors of Environmental health	www.ccdeh.org
Tribal Governments	EPA Region 9 Tribal website	http://www.epa.gov/tribal/whereyoulive/region9.htm .
Sonoma Technology, Inc.	AirNow Data Management and Technical Support	707-665-9900 airnowinfow@sonomatech.com

Out-of-State Contact List

CONTACT AGENCY OR ORGANIZATION	STAFF NAME and POSITION	CONTACT PHONE/EMAIL
USFS National Smoke Management Program (SMP)	Pete Lahm, Forest Service National SMP Coordinator	(202)205-1084 plahm@fs.fed.us
Oregon Department of Environmental Quality	Brian Finneran, Air Quality	(503) 229-6278 finneran.brian@deq.state.or.us
Nevada Department of Environmental Protection	Sig Juanarajs, Air Quality	(775) 687-9392 sjaunara@ndep.nv.gov
Washoe County Air Quality Management Division	Daniel Inouye, Air Quality	775-784-7214 Dinouye@washoecounty.us
Arizona Dept. of Environmental Quality	Ron Sherron (USFS employee) Interagency Smoke Coordinator	602-332-1099 rs8@azdeq.gov
Arizona Dept. of Environmental Quality	Jonny Malloy Smoke Manager	602-771-6815 jwm@azdeq.gov

Appendix B

Requesting ARB Emergency Air Monitoring Support Services

Updated March, 2014

This procedure applies to any emergency involving the release of a hazardous airborne contaminant for which a local agency has exhausted its resources in protecting public health or the environment. Requesting agencies typically include local air districts, public or environmental health departments, and county or city fire departments. The process for requesting State support is established by the Emergency Services Act (Government Code § 8550-8692 et seq.) and the Standardized Emergency Management System.

The Air Resources Board's (ARB) Office of Emergency Response (OER) can provide State-level support for air contaminant monitoring, sampling, analysis, and dispersion modeling. OER also coordinates with numerous partner agencies to provide emergency toxicological assessments, health advisory recommendations, indoor air quality assessments, air monitoring for recovery operations, and assessment of air quality for re-entry.

Steps to Obtain OER Support

1. Contact OER
 - a. Contact an OER team member from the Contact Table below at the earliest indication on the need for air monitoring and/or assessment support. If OER cannot be reached, call the State Warning Center directly at (916) 845-8911 to initiate a support request.
 - b. Describe in as much detail as possible the release situation and the specific services needed. This enables a greater assessment of your needs and determines how to provide timely assistance.
 - c. Follow up the request with an e-mail, including your name, position, agency, contact information, and the name of the incident, if known.
 - d. OER will review your request, assess the situation and resources available, and respond as quickly as possible with initial recommendations.
2. Obtain a State Support "Mission Task"
 - a. Contact your Operations Area or County Emergency Operations Center, the organization designated to coordinate assistance from the State.
 - b. Ask the Operations Area to assist you in submitting a "Mission Request" for air monitoring support. This is the official process to request State assistance. It does *not* require a county declaration of emergency. You will need to provide the same information as noted in Step 1. b. and c. above.
 - c. If your agency (e.g., air district) covers more than one county jurisdiction, it is recommended that the most impacted county submit the Mission Request.
3. Mission Request Approval

- a. The Operations Area will forward a Mission Request to the Regional Emergency Operations Center (REOC). The REOC will approve the mission or forward it to the State Operations Center (SOC) for approval.
- b. Once approved, a “Mission Task” is issued authorizing OER to support the incident and expend available resources as necessary.
- c. The REOC or SOC will notify OER and the Operations Area of the approval and the Mission Task number.

4. Deployment

- a. OER will contact the requesting agency directly to coordinate monitoring logistics and data disposition. OER will work with you to complete a Monitoring and Sampling Plan for the incident.
- b. OER will contact Incident Command or Unified Command and the monitoring partners to notify them of our activities.
- c. OER will follow-up with the requesting agency on data access, equipment performance, potential equipment repositioning, short-term monitoring needs, and demobilization plans as dictated by the incident.

SERVICE NOTE: ARB does not have an on-call system, but makes every effort to maximize their availability during emergency events.

Contact Table: ARB Emergency Air Monitoring Support

Name	OER Position	Work Phone	Cell Phone	Email
Greg Vlasek	Team Coordinator	916-323-4294	916-838-0872	gvlasek@arb.ca.gov
Mike Miguel	Back-up Coordinator	916-322-0960	916-416-3407	mmiguel@arb.ca.gov
Charles Pearson	Monitoring Co-Lead	916-322-7054	--	cpearson@arb.ca.gov
Mark Copple	Monitoring Co-Lead	916-445-3606	--	mcopple@arb.ca.gov
Russ Bennett	Monitoring Co-Lead	916-324-1149	916-206-1771	rbennett@arb.ca.gov
State Warning Center		800-852-7550		

This procedure is also available on the CARPA website at:

<http://www.arb.ca.gov/carpa/toolkit/toolkit-data.htm>.

Appendix C

CARPA Monitoring & Sampling Plan Template

Available for download on the CARPA website in MS Word format at:

<http://www.arb.ca.gov/carpa/toolkit/toolkit-data.htm>

Appendix D

California Smoke Blog Administrators' Contact Info

Contact Agency or Organization	Staff Name and Position	Contact Phone/Email
Placer County Air Pollution Control District	Ann Hobbs Air Quality Specialist	(530) 745-2327 ahobbs@placer.ca.gov
CA Air Resources Board	Charles Pearson Air Pollution Specialist Emergency Response	(916) 322-7054 cpearson@arb.ca.gov
CA Air Resources Board	Jason Branz Meteorology	(916) 445-5271 jbranz@arb.ca.gov
CA Air Resources Board	Dar Mims Meteorology	(916) 322-7454 dmims@arb.ca.gov
National Park Service	Lee Tarnay Air Quality Specialist	(209) 742-8899 Leland_tarnay@nps.gov

Appendix E

Air Quality Warning Template

[agency logo]

FOR IMMEDIATE RELEASE

[DATE]

Public Health Contact:

[NAME], Public Information Officer, DIRECT LINE AND/OR CELL]

Air Pollution Control District Contact:

[NAME, TITLE, PHONE NUMBER]

Air Quality Warning Issued for [LOCATION]

Smoke from [NAME] Fire near [LOCATION]; High Winds

[CITY/COUNTY], Calif. — The [NAME] Public Health Department and the [NAME] Air Pollution Control District today issued an Air Quality Warning for [LOCATION] areas [DIRECTION; EAST/WEST/NORTH/ SOUTH] . Air quality is already poor in some parts due to smoke from the [NAME] fire [SPECIFIC AREAS DESIGNATED BY ROAD BOUNDARIES OR GEOGRAPHIC DESIGNATIONS].

If you see or smell smoke in the air where you are, be cautious and use common sense to protect you and your family's health. Everyone, especially people with heart or lung disease (including asthma), older adults, and children, should limit time spent outdoors, and avoid outdoor exercise when smoke is in the area. If you have symptoms of lung or heart disease that may be related to exposure to smoke and particles, including repeated coughing, shortness of breath or difficulty breathing, wheezing, chest tightness or pain, palpitations, nausea or unusual fatigue or lightheadedness, contact your health care provider.

Levels of smoke and particles will depend on changes in winds, and the movement of the fire. This Air Quality Warning will be updated [FREQUENCY TBD].

For more information [WEBSITE OR OTHER LINKS]. For recorded advisory updates, call [PHONE NUMBER].

Appendix F

Examples of Wildfire Smoke Public Announcements

News Release

For release: *date*

Contacts: names, phone numbers

[Agency name] Urges Residents to Protect Themselves from Wildfire Smoke

It's wildfire season in [county] and smoke could be on the way. [Agency name] advises people to take precautions to protect themselves from unhealthy smoke levels.

Wildfire season is underway with *[xx wildfires]* currently burning in the state. Under certain weather conditions smoke from these fires can drift into communities and quickly cause unhealthy air quality. Should smoke events occur, *[agency name]* and health officials urge local residents to take the following precautions to avoid breathing problems or other symptoms from exposure to smoke:

- Be aware of smoke concentrations in your area and avoid the places with highest concentrations.
- Avoid smoke either by leaving the area or protecting yourself by staying indoors, closing all windows and doors and using a filter in your heating/cooling system that removes very fine particulate matter.
- Avoid strenuous outdoor activity in smoky conditions.
- People suffering from asthma or other respiratory problems should follow their breathing management plans or contact their healthcare providers.

Remember, local smoke levels can rise and fall rapidly, depending on weather factors including wind direction. People can conduct a visual assessment of smoke levels to quickly get a sense of air quality levels and take precautions. If people have additional concerns, they should contact the nearest regional or local public health agency for the latest in health conditions from smoke.

For more information about local conditions:

- Visit the California Smoke Blog (www.californiasmokeinfo.blogspot.com) for more information regarding smoke and air quality, along with tools to help people assess smoke levels in their area.
- Tune to local radio and TV stations and the Weather Channel in affected areas that may include the very latest fire information in news programming and weather reports.
- Consider obtaining a dedicated NOAA Weather Radio receiver, which will alert you 24 hours a day to hazards in your area.

News Release

For release: *date*

Contacts: names, phone numbers

Smoke From *[wildfire name]* Creates Hazardous Air Quality

Calm winds and a temperature inversion caused smoke concentrations to reach hazardous levels between 4 a.m. and 8 a.m. today. Conditions improved as daytime temperatures increased, but very smoky conditions could return early Wednesday morning.

The *[wildfire]*, *xx* miles from *[location/city]* sent dense smoke into the town in the early morning hours today. Calm conditions and a temperature inversion caused smoke from the fire to settle in at ground level between 3 a.m. and 9 a.m. Smoke concentrations at the air quality monitor in *[city]* reached hazardous levels during this time.

[Agency name] urges everyone to avoid outdoor exertion during such conditions. People with respiratory or heart disease, the elderly and children should remain indoors.

The National Weather Service predicts that calm conditions, a high pressure system and nighttime temperature inversions could cause very smoky mornings through Saturday. Conditions are expected to improve as daytime temperatures rise and the smoke lifts away from ground level.

However, under certain weather conditions wildfire smoke can drift into communities and quickly cause unhealthy air quality. Should additional smoke events occur, *[agency name]* and health officials urge local residents to take the following precautions to avoid breathing problems or other symptoms from exposure to smoke:

- Be aware of smoke concentrations in your area.
- Avoid smoke by staying indoors, closing all windows and doors and using a filter in a heating/cooling system that removes very fine particulate matter. If possible, avoid smoky areas.
- Avoid strenuous outdoor activity including sports practice, work and recreation.
- People with concerns about health issues, including those suffering from asthma or other respiratory problems should follow their breathing management plans or contact their healthcare providers.

Remember, local smoke levels can rise and fall rapidly, depending on weather factors including wind direction. People can conduct a visual assessment of smoke levels to quickly get a sense of air quality levels and take precautions. If people have additional concerns, they should contact the nearest regional or local public health agency for the latest in health conditions from smoke.

For more information about local conditions:

- Visit the California Smoke Blog (www.californiasmokeinfo.blogspot.com) for more information regarding active smoke and air quality, along with tools to help people assess smoke levels in their area.
- Tune to local radio and TV stations and the Weather Channel in affected areas that may include the very latest fire information in news programming and weather reports.
- Consider obtaining a dedicated NOAA Weather Radio receiver, which will alert you 24 hours a day to hazards in your area.